

acid. Once the acid is added, the sample is stabilized. You must check the pH of your "fixed" phosphorus sample before sending it to the State Laboratory of Hygiene. To do this, after adding the sulfuric acid, mix the sample and pour a few drops into the lid of the bottle. Then pour the few drops from the lid onto a sheet of waxed paper. Withdraw and tear off approximately 2 inches of litmus paper and immerse in solution on the waxed paper. Remove and promptly compare with specimen colors on dispenser to determine corresponding pH. A properly mixed sample will have a pH of 2 or less. Remember to always wear your safety goggles and gloves when handling sulfuric acid to prevent injury to your hands or eyes and flush any spilled acid with water (see Appendix 1 for further detail on sulfuric acid).

### **Chlorophyll Sampling**

Your chlorophyll sample should be collected at least once during June, July, and August; and once during fall turnover (mid-October). Since there is little algal growth in early spring, there is no need to sample chlorophyll until June. The integrated water sampler will collect a sample from the first 6 feet of the water column. This depth contains algae that are representative of species that live in the upper layers of the water column. After collecting your sample, transfer the water to the clean plastic juice jug provided for your use. Since the green chlorophyll pigment degrades quickly in sunlight, it is essential that you place the juice jug in a cool, shady spot as soon as you can. In addition, all processing of the sample should also be conducted on shore and out of direct sunlight.

The amount of water that you will filter is directly dependent on what the Secchi depth of your lake was on the day you sampled. As discussed starting on page 11, measuring Secchi depth is one way to estimate the concentration of algae in the water. The deeper you can see the Secchi disc, the fewer algae there is in the water and vice versa (i.e. the shallower the Secchi disc reading, the more algae there is). An exception to this would be lakes with turbid or naturally stained water. Since there is a proportional relationship between Secchi depth and the amount of chlorophyll present, the deeper the Secchi reading, the more water you will have to filter to collect enough algae to measure (see table on page 7.11). Once you have determined the volume of water that you will need to filter, you will pour that volume from the plastic juice jug into your graduated cylinder for a precise measurement.

Note that although the upper cup of the filtering apparatus can be used to measure water volume, it is not an accurate measuring device and should not be used to measure the volume of water you need to filter. It is important that you not put place your fingers on the filter paper or in the water sample as the natural oils found on your skin may degrade the chlorophyll in the samples. Use the tweezers provided to place the filter on and to remove the filter paper from the filtering device. Be sure to only use the white filter paper and not the blue filter divider sheets. After the water has been filtered to extract the algae, the filtered water may be discarded. Only the residue on the filter paper will be analyzed. After you are done filtering, the filter paper sample must be kept in the freezer until you send it to the State Laboratory of Hygiene to be analyzed.



# ON LAKE PROCEDURES

## How to Collect Water Samples

### *Integrated Water Sampler*

Please note that although the Van Dorn sampler has been used in the past to collect water for chemistry analysis, for consistency purposes, the network hopes to have all volunteers using the integrated water sampler to collect water samples for phosphorus and chlorophyll testing.

**STEP 1.** The lake that you are sampling should be at least 10 feet in depth in order to use the integrated sampler. Rinse the integrated sampler with lake water. Fill the sampler with lake water and empty the water out of the top of the sampler. This will clean out any dirt or dust that may have gotten in the sampler during transport or storage.



**STEP 2.** Open the juice jug and place it in an accessible spot. Always place the cap top-side down to prevent contamination.



**STEP 3.** While holding onto the rope end (top) of the integrated water sampler, slowly lower the collection end (bottom) of the sampler tube into the water column until the water level reaches the six-foot mark on the sampler. Try and keep the sampler as vertical as possible when lowering it into the water. Raise the sampler out of the water.

**STEP 4.** Drain the integrated water sampler by touching the collection end of the sampler to the rod in the juice jug neck. Water will drain from the integrated water sampler tube into the juice jug. This water will be used for your phosphorus and chlorophyll samples.



**STEP 5.** To prepare your phosphorus sample, remove the cap from your 250 ml State Laboratory of Hygiene bottle. Always place cap topside down to prevent contamination. Pour water from the juice jug into the bottle. Avoid touching the mouth of the juice jug and the phosphorus bottle lip to prevent contamination. Replace the cap. Complete the information on a phosphorus sticker using a pencil and attach the completed sticker to the bottle.

**STEP 6.** The remainder of water will be used for your chlorophyll analysis. It is important to keep the chlorophyll sample cool and out of direct sunlight until you return to shore.

**STEP 7.** Store your integrated sampler top side down. This will prevent algal growth between the ball and the collection end of the sampler.